## **ABSTRACT**

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An arrayed waveguide grating type optical multiplexer/demultiplexer circuit in which wavelength dispersion is reduced. An input wave guide (1), a first slab waveguide (2), an arrayed waveguide (3), a second slab waveguide (4) and an output waveguide (5) are connected sequentially. Furthermore, a parabola waveguide (6)is provided between the input waveguide (1) and the first slab waveguide (2), and a taper waveguide (7) is provided between the second slab waveguide (4) and the output waveguide (5). A parabola waveguide length  $Z_0$  exists in a range  $Z_{a,0}=Z_0=Z_p$ , determined by a parabola waveguide length  $Z_{a,0}$  where the ratio of absolute amplitude between the main peak and the first side peak in the field distribution of far-field of the parabola waveguide (6) has an upper limit of 0.217, and a parabola waveguide length  $\mathbf{Z}_{\text{p,0}}$  where the relative phase of the main peak and the first side peak in the field distribution of far-field has a lower limit of 3.14 radian.